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stock may be met by a combination of a reduced safety stock level (q_{SAFETY}) that is kept on hand and supplied by non-spot market sources, and products supplied in real time by spot market sources (q_{SPOT}) to meet actual unmet demand that falls within target service level requirements ($q_{MAX} = q_{SAFETY} + q_{SPOT}$). The total non-spot market product cost ($C_{SAFETY}(q_{SPOT})$) decreases linearly with the amount of product supplied by spot market sources (q_{SPOT}). At the same time, the total spot market product cost ($C_{SPOT}(q_{SPOT})$) increases with the amount of product supplied by spot market sources (q_{SPOT}). In this model, the total spot market product cost is assumed to increase nonlinearly as a function of spot market quantity; however, in other models, the total spot market cost may increase linearly with spot market quantity or may vary with spot market quantity in ways selected to reflect actual conditions of the customer demand and the spot market. As shown, the total product cost ($C_{TOTAL}(q_{SPOT}) = C_{SAFETY}(q_{SPOT}) + C_{SPOT}(q_{SPOT})$) has a characteristic U shape, and is minimized when the maximum safety stock level (q_{MAX}) is reduced by the optimal quantity ($q_{SPOT, OPTIMAL}$) of product to be supplied by spot market sources. Depending upon actual demand and market conditions, the overall reduction in total product cost (ΔC) may be quite substantial.--

In the claims:

Please add the following new claim.

a 3
21. The method of claim 1, wherein the safety stock level is planned based at least in part on total spot market product cost as a function of amount of product supplied by one or more spot market sources.

COMMENTS

I. Status of claims

Claims 1-20 were pending.

Claim 21 has been added.

II. Specification

The specification has been amended to include the missing Application Serial No. information in the Cross-Reference To Related Applications section of the present application.

The specification also has been amended to correct a minor typographical error.

III. Claim rejections under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1-20 under 35 U.S.C. § 103(a) over Garg (U.S. 6,144,945) in view of Salvo (U.S. 6,314,271).

For the purpose of the following discussion, the examiner is reminded that (emphasis added):

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not on applicants' disclosure.

MPEP § 706.02(j) (emphasis added). Furthermore, as pointed out by the Patent Office Board of Appeals and Interferences:

The examiner should be aware that "deeming" does not discharge him from the burden of providing the requisite factual basis and establishing the requisite motivation to support a conclusion of obviousness.

Ex parte Stern, 13 USPQ2d 1379 (BPAI 1989).

A. Independent claim 1

Regarding Garg, the Examiner has acknowledged that Garg fails to teach planning a safety stock level to cover uncertainty in demand over an exposure period with a desired service level based at least in part upon product availability from a spot market, as required by independent claim 1. Regarding Salvo, the Examiner has indicated that (emphasis added):

Salvo et al. teaches, figure 1, an inventory management system where the inventory price source module 126 searches for and compares buying options in order to optimize purchase value. The inventory price source comprises at least one of economic indicators, economic models, commodity pricing indexes, spot market pricing, Dow Jones™ information, other market information, and other inventory price sources (non-spot market pricing). The control unit 114 stores and analyzes historical trends of inventory prices to determine analyzed inventory price trends.

That is, the Examiner has indicated that Salvo's inventory price source 126 is configured to optimize purchase value based on an analysis of price information obtained from various price sources, including spot market and non-spot market price sources. Based on this teaching, the Examiner has concluded that:

Based on the teaching of Salvo et al., it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Garg et al. system to incorporate the inventory price source module of Salvo et al. as a source for many set of input values in the Garg et al. process which plans safety stock levels in order to optimize purchase value.

Contrary to the Examiner's conclusion, however, it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify Garg's system by incorporating Salvo's inventory price source 126 "as a source for many set of input values in the Garg et al. process" because Garg's process for optimizing the parameters for the (s, S) inventory policy does not have product pricing information as an input. Therefore, there would not have been any motivation for one of ordinary skill in the art at the time of the invention to incorporate the inventory price source 126 into Garg's optimization process. It is noted that the variable A in Garg's input list (col. 8, lines 1-14) corresponds to an average

internal cost per period, which is computed based on the fixed cost, K , of placing an order (i.e., an internal transaction cost) and the unit holding cost, h , per period (see equation (14)).

For at least this reason, the Examiner's rejection of independent claim 1 should be withdrawn.

It is noted that the Examiner's indication that Salvo's "inventory price source module 126 searches for and compares buying options in order to optimize purchase value" does not make up for Garg's failure to teach planning a safety stock level based at least in part upon product availability from a spot market. In Salvo's inventory management approach, control unit 114 determines if an inventory order is needed and then determines the lowest total inventory purchase price source (see, e.g., col. 6, lines 47-54). In particular, Salvo's control unit 114 determines if an inventory order is needed based only on the amount of inventory used over time and an estimate of future use (see, e.g., col. 5, lines 7-10). That is, the step of optimizing purchase price is not used to plan inventory levels. Therefore, as in Garg's process, the fact that spot market and non-spot market pricing might be considered in determining an optimal purchase price is irrelevant to Salvo's scheme for planning safety stock levels.

For at least these reasons, the Examiner's rejection of independent claim 1 under 35 U.S.C. § 103(a) over Garg in view of Salvo should be withdrawn.

B. Dependent claims 2-20

Each of claims 2-20 incorporate the features of independent claim 1 and therefore these claims are patentable for at least the same reasons explained above. Claims 2-17 also are patentable for the following additional reasons.

Each of claims 2-17 requires the steps of (1) estimating a maximum safety stock level of the product to cover uncertainty in demand over the exposure period with the desired service level based upon product availability from a non-spot market supply, and (2) estimating an optimal safety stock level by reducing the maximum safety stock level based upon product availability from a spot market supply. Neither Garg nor Salvo, taken alone or in any permissible combination, teaches or suggests such safety stock estimation steps.

Indeed, Garg merely discloses an inventory policy scheme in which a single safety stock level of a product (SS) needed to cover uncertainty in demand over the exposure period